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The relationships between employment, clinical status, and psychiatric hospitalisation in patients with schizophrenia receiving either IPS or a conventional vocational rehabilitation programme

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Abstract

Purpose Positive relationships between employment and clinical status have been found in several studies. However, an unequivocal interpretation of these relationships is difficult on the basis of common statistical methods.

Methods In this analysis, a structural equation model approach for longitudinal data was applied to identify the

direction of statistical relationships between hours worked, clinical status and days in psychiatric hospital in 312 persons with schizophrenia who participated in a multi-centre randomised controlled trial comparing the effectiveness of Individual Placement and Support (IPS) with conventional vocational services in six study settings across Europe. Data were analysed by an autoregressive cross-lagged effects model, an autoregressive cross-lagged model with random intercepts and an autoregressive latent trajectory model.

Results Comparison of model fit parameters suggested the autoregressive cross-lagged effects model to be the best approach for the given data structure. All models indicated that patients who received an IPS intervention spent more hours in competitive employment and, due to indirect positive effects of employment on clinical status, spent fewer days in psychiatric hospitals than patients who received conventional vocational training.

Conclusions Results support the hypothesis that the IPS intervention has positive effects not only on vocational but also on clinical outcomes in patients with schizophrenia.

For the EQOLISE group. The members of the EQOLISE group are listed in [Appendix](#).

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Keywords Supported employment · Psychosis · Vocational rehabilitation · Longitudinal analysis · ALT model

Introduction

In view of the complex relationships between occupation and mental health, entering a job may have positive or negative effects on the clinical status and subjective well-being of people with severe mental illness (SMI). However, the empirical evidence for vocational integration programmes having positive or negative effects on the mental

health of people with SMI is far from clear. While some studies have found a significant positive relationship of clinical and vocational outcomes, other studies have not confirmed these findings [1]. Nevertheless, in a randomised controlled trial (RCT) comparing a SE intervention, the Individual Placement and Support (IPS) programme and a group skills training over 18 months, Mueser et al. [2] and Bond et al. [3] found positive effects of competitive employment when compared to conventional vocational services (VS) on psychopathological symptoms, job-related quality of life, self-esteem and global functioning. Drake et al. [4] found non-vocational outcomes similarly improved in both the IPS and the 'enhanced vocational rehabilitation' arm of their study. Mueser et al. [5] detected no effects of the type of vocational service or employment status on clinical outcomes. Gold et al. [6] revealed no substantial differences of psychiatric symptoms and self-reported quality of life between study arms, and no significant change from baseline over time. The authors referred to 'floor effects' to account for these negative findings. Latimer et al. [7] found no effect of study group assignment on symptoms, quality of life, social support, measures of functioning or substance misuse measures. However, the authors indicated that self-esteem, while initially lower in the SE group, improved over time in contrast with a non-significant trend towards decline in the VS group. Within the SE group, there was no significant correlation between change in self-esteem scores and vocational outcomes.

In a recent analysis of the long-term impact of employment on mental health services use of people with severe mental disorder, Bush et al. [8] found that over a 10-year period patients who became steady workers, in the sense that they maintained their employment over five years or more significantly decreased their use of mental health services. The authors hypothesize that this finding could indicate a positive causal effect of employment on the patients' clinical status; however, the data presented did not allow to test the direction of the effect [8].

In the EQOLISE study, Burns et al. [9, 10] examined the effects of IPS compared to conventional rehabilitation programmes among people with SMI in six European centres. As well as providing evidence of the superiority of the IPS programme with regard to vocational outcomes, the authors found that participants who were employed for a minimum of 1 day showed more improvement in terms of clinical variables and subjective well-being than those who did not work [11]. In addition, the study revealed that patients who received the IPS intervention had significantly lower risk of psychiatric hospital admission than participants who received VS [11].

Although positive relationships between finding a job and clinical symptoms have been reported in previous studies, this does not provide sufficient evidence that

(a) finding a job has no negative impact on clinical variables or (b) that finding a job causes clinical improvement. It is possible that the relationships between employment status and clinical outcomes result from positive or negative selection effects [8, 11]. In the case of positive selection effects, those participants with a better clinical development would be more successful in finding a job. In the case of negative selection effects, those participants who experienced clinical deterioration as a consequence of working would leave the job early and would not try to find another job. Both selection processes would result in positive relationships between being employed and having a better clinical status or subjective well-being. This is why an in-depth analysis of the relationship between vocational and clinical variables is urgently needed. Thus, this paper further analyses the relationships between employment hours, psychopathological symptoms and the days of inpatient treatment detected in the EQOLISE study with special emphasis on the question of whether employment affects clinical status and hospital admission or whether the time in employment is affected by clinical status.

Methods

Study design

An RCT comparing the effectiveness of IPS and VS in bringing people with SMI back to competitive employment was conducted in six European centres: London (UK), Groningen (The Netherlands), Günzburg/Ulm (Germany), Rimini (Italy), Sofia (Bulgaria), and Zurich (Switzerland). A sample size of 300 persons (25 per group and per centre) was calculated to provide a power of 90% for detecting a 13% difference in employment at a significance level of 5%. Study participants ($n = 312$) were included if they had a psychotic illness, were aged 18 to local retirement age, had been ill for at least 2 years, were living in the community or had not been in competitive employment in the preceding year and wanted to enter competitive employment. Recruitment took place between April 2003 and May 2004, and participants were randomly allocated to receive either IPS or local/regional VS (see Table 1). Randomisation was done centrally and stratified by centre, gender, and work history by means of the MS-DOS program MINIM (Version 1.5) [12]. The study was not blinded. Further details of the IPS intervention and the randomization procedure have been published elsewhere [9, 10].

Assessment methods

Clinical diagnoses of psychotic disorders were confirmed on the basis of case notes by independent clinically trained

Table 1 Sample characteristics at baseline

Group	IPS	VS	Total
<i>N</i>	156	156	312
Age:mean (SD)	37.3 (9.8)	38.3 (9.9)	37.8 (9.9)
Male, <i>n</i> (%)	93 (59.6)	95 (61.0)	188 (60.3)
Age at first psychiatric contact mean (SD)	26.8 (8.36)	26.5 (8.54)	26.6 (8.44)
No. of psychiatric admissions mean (SD)			
0	13 (8.3)	18 (11.7)	31 (10.0)
1–5	117 (75.0)	105 (67.7)	222 (71.4)
6–10	16 (10.3)	23 (14.9)	37 (11.9)
11+	10 (6.4)	5 (3.2)	21 (6.8)
Diagnosis, <i>n</i> (%)			
Schizophrenia/schizoaffective disorders	122 (78.7)	126 (81.8)	248 (80.3)
Bipolar disorder	28 (18.1)	23 (14.9)	51 (16.5)
Other	5 (3.2)	5 (3.2)	10 (3.2)
Work history, <i>n</i> (%)			
>1 month last year	88 (56.4)	86 (55.0)	174 (55.89)
<1 month last year	68 (43.6)	70 (45.0)	138 (44.2)
Years of education mean (SD)	12.1 (3.8)	11.6 (3.1)	11.9 (3.5)
Living situation, <i>n</i> (%)			
Living alone (\pm children under 18)	53 (34.0)	62 (39.7)	115 (37.0)
Living with others (\pm children under 18)	103 (66.0)	94 (60.3)	197 (63.0)
Born in country of residence, <i>n</i> (%)	135 (86.5)	147 (94.2)	282 (90.4)

research staff using OPCRIT, a validated structured assessment [13]. Assessments were performed at baseline, 6, 12 and 18 months by independent clinically trained research workers, who were not blinded to the type of intervention. The actual clinical status at baseline and at each follow-up was assessed using the Positive and Negative Symptoms Scale (PANSS) [14]. Employment was defined as part- or full-time work in the competitive job market at prevailing wages with supervision provided by personnel employed by the business and in integrated work settings. The individual job was not to be “protected” or otherwise designed for a person with disabilities only. The number of hours worked in competitive employment and the number of days spent in psychiatric inpatient treatment was assessed retrospectively for the preceding 6-month interval at each follow-up.

Statistical methods

The aim of our analysis was to examine the relationships between hours worked in competitive employment, clinical status measured by the PANSS and days spent in psychiatric inpatient treatment during the 18-month study period. Due to the inclusion criteria of the study, employment status and hospital admission were zero for all participants at study onset, therefore the actual clinical status of the patients was assessed at baseline and three follow-ups,

while the hours worked and the days spent in hospital during each 6-month period were assessed retrospectively at the 6-, 12- and 18-month follow-up. Therefore, four measures of the clinical status (PANSS0, PANSS1, PANSS2 and PANSS3), three measures of hours worked (WHOURS01, WHOURS12 and WHOURS23) and three measures of the number of days spent in hospital (HOSPD01, HOSPD12 and HOSPD23) were available for our analysis.

Statistical analysis of relationships between time varying variables

There are several approaches for modelling relationships between time varying variables [15, 16]. In the autoregressive cross-lagged model (ARCL), the value of a time varying variable y at time t can be specified as a linear combination of its preceding value at $t - 1$ (autoregression), the values of a set of other variables $x_1 - x_k$ at $t - 1$ (cross-lagged effects) and a random error. The cross-lagged coefficients of the ARCL can be interpreted as the effects of x at $t - 1$ on the change of y between $t - 1$ and t . While the interpretation of the cross-lagged effects in the ARCL is straightforward, this model disregards individual differences in the change process [15–17].

In the latent trajectory model (LTM) the change of y is specified as the result of an underlying (latent) growth

process which, in the linear case, is defined by a latent intercept representing the mean of y at t and a latent slope representing the change of y from t to $t + 1$ [17]. In contrast to the ARCL the LTM allows the change process to vary between individuals. Relationships between time varying variables can be assessed by specifying paths between the latent parameters of the LTM model [17]. While the LTM model takes into account the variance in the change process between individuals, the relationships between latent trajectory parameters do not allow conclusions about the direction of causal effects [15, 17, 18].

The autoregressive latent trajectory (ALT) approach combines the LTM and the cross-lagged autoregressive model for the examination of longitudinal relationships between variables measured repeatedly [17, 18]. While the cross-lagged autoregressive model takes into account that any repeated measure of a variable is affected by previous measures of that variable and allows the specification of paths between measures of variables at different points in time, the latent trajectory part of the ALT model captures the individual variance in the growth processes [17, 18]. However, the ALT model has also been criticized because adding random slopes to the ARCL model competes with the autoregressive effect in the ARCL part of the model [16, 19]. Furthermore, it has been stated that the specification of a time slope makes the results of the ARCL depend on the time scale contrary to the assumption of time invariance in the ARCL [16, 19].

Model specification and model selection

In order to find the model which provides the best fit of our data, we started with specifying an ARCL with fixed cross-lagged effects, then we specified a LTM with random intercepts for all time varying variables. We then specified a LTM with random slopes and random intercepts for all time varying variables to test whether the growth processes of these variables varied significantly between individuals. Since only the random intercept of the PANSS score showed a significant mean and a significant variance between study subjects, we finally specified an ALT including the autoregressive and the cross-lagged effects for all time varying variables and a random intercept of the PANSS.

Because structural equation models (SEM) are only identified when the number of known parameters at least equals the number of parameters to be estimated, it is necessary to reduce the number of unknown parameters by model constraints. As suggested in the literature [17], we constrained the autoregressive effects of the same variables and the cross-lagged effects between the same variables as being equal. All model constraints were tested with regard to its impact on the model fit.

Since study participants were recruited in six study sites we used robust variance estimation [20] with study centre as cluster variable.

Missing at random was assumed for all models in which cases with missing values were included. To control for possible selection effects due to panel attrition we re-calculated all models with a list-wise deletion of all cases with missing values.

To assess the fit of our models we used the χ^2 test, the Tucker Lewis index (TLI), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR).

The TLI is defined as

$$\frac{\frac{\chi^2}{df(\text{null model})} - \frac{\chi^2}{df(\text{proposed model})}}{\chi^2(\text{null model})}$$

and should have a value >0.95 . The CFI is defined as

$$\frac{\chi^2 - df(\text{null model}) - \chi^2 - df(\text{proposed model})}{\chi^2 - df(\text{null model})}$$

and should also have a value >0.95 . The RMSEA is defined as

$$\frac{\sqrt{(\chi^2 - df)}}{\sqrt{df - 1}}$$

where a value of 0.01 indicates an excellent fit, a value of 0.05 indicates a good fit and a value of 0.08 indicates a mediocre fit. The SRMR is the standardized difference between the observed correlation and the predicted correlation and should have a value <0.08 [21, 22].

For comparing the fit between the different models we used the Akaike Information Criterion (AIC), which is defined as $\chi^2 + k(k - 1) - 2df$, where k is the number of variables in the model, and the Bayesian Information Criterion (BIC), which is defined as $\chi^2 + \ln(N)[k(k - 1)/2 - df]$, where k is the number of variables in the model and $\ln(N)$ is the natural logarithm of the number of cases [21, 22].

Statistical analyses were performed with MPLUS 6 [22].

Results

Table 2 shows the means and the standard deviations of the time varying variables, and Table 3 presents the latent growth curve parameters for these variables.

Only the PANSS total score has a significant latent intercept with a significant variance between individuals. Therefore, an autoregressive cross-lagged model with an additional random intercept for the PANSS was compared with an autoregressive cross-lagged model without latent trajectory component.

Table 2 Means and standard deviations of model variables

	<i>t</i> 0	<i>t</i> 1	<i>t</i> 2	<i>t</i> 3
PANSS total score	59.64 (16.97)	57.15 (17.08)	56.02 (16.45)	55.09 (14.92)
Hours worked during the past 6 months	0	73.87 (217.48)	94.31 (228.48)	133.38 (299.84)
Days in hospital during the past 6 months	0	7.20 (21.61)	7.07 (20.79)	5.79 (18.50)

Table 3 Latent trajectory parameters of model variables

	Intercept (<i>p</i>)		Slope (<i>p</i>)	
	Mean	Variance	Mean	Variance
PANSS total score	59.06 (0.000)	258.64 (0.005)	−1.44 (0.132)	12.64 (0.000)
Hours worked during the past 6 months	43.43 (0.118)	6,954.95 (0.643)	29.36 (0.000)	3,119.28 (0.212)
Days in hospital during the past 6 months	7.49 (0.007)	825.98 (0.056)	−0.51 (0.397)	81.67 (0.074)

The model fit parameters of both models are presented in Table 4. The χ^2 test indicates a significant deviation of the proposed model from the observed covariance structure for both models. However, all other fit parameters reveal sufficient model fit for the ARCL while the fit of the ALT with an additional latent intercept for the PANSS showed only sufficient values for the CFI, the TLI and the RSMEA, but not for SRMR. The better values of these fit indices and the lower values of the information criteria AIC and the BIC indicated that the ARCL fitted the observed covariance structure better than the ALT. Therefore, the ARCL was chosen as the final model.

Figure 1 presents the structure of the final ARCL. In this model, it is assumed that the hours worked by the patients in each of the three 6-month intervals are influenced by the IPS intervention, by the clinical status measured by the PANSS total score at the beginning of the interval and by the hours worked in the preceding time interval. The patients' clinical status at each follow-up is regarded as a function of the preceding value of the PANSS, of the hours worked during the preceding 6-month interval and of the number of days spent in hospital during the preceding time interval. The number of inpatient days in each 6-month interval is specified as a function of the hospital days in the

preceding time interval and the clinical status measured by the PANSS at the beginning of the time interval. In addition, it is assumed that the number of hours worked during each follow-up period is correlated with the number of days spent in a psychiatric hospital during the same period.

Results of the autoregressive cross-lagged model are presented in Table 5. Path coefficients of the direct effects indicate that patients who received the IPS intervention worked for more hours between *t*0 and *t*1, between *t*1 and *t*2 and between *t*2 and *t*3 (*b* 65.504; *p* 0.019). With the exception of the first follow-up period the number of hours worked at each 6-month interval was positively related to the hours worked during the preceding time interval (*b* 0.615; *p* 0.000). Furthermore, the number of hours worked during each time interval was negatively related to the PANSS score at the beginning of the interval (*b* −1.323; *p* 0.022).

The number of inpatient days during each time interval was positively related to the PANSS score at the beginning of the interval (*b* 0.201; *p* 0.020) and to the number of hospital days during the preceding interval (*b* 0.502; *p* 0.000). Clinical patient status, measured by PANSS, was positively related to the PANSS score at the preceding time of assessment (*b* 0.777; *p* 0.000) and negatively related to the number of hours worked during the preceding 6-month interval (*b* −0.003; *p* 0.037).

As indicated by the parameters of the indirect effects, patients who received an IPS intervention spent fewer days in hospital between *t*1 and *t*2 (*b* −0.036; *p* 0.032) and between *t*2 and *t*3 (*b* −0.104; *p* 0.030).

Decomposition of the indirect effects reveals that IPS mainly works through the increase of working hours between *t*1 and *t*2 and the subsequent decrease of the PANSS score at *t*2 (*b* −0.036; *p* 0.032), but also through the increase of working hours between *t*0 and *t*1, between *t*1 and *t*2 and the subsequent decrease of the PANSS score

Table 4 Comparison of model fit parameters

Model fit parameter	Autoregressive cross-lagged model	Autoregressive cross-lagged random intercept model
$\chi^2/\text{df}/p$	105.748/43/0.000	174.667/46/0.000
CFI/TLI	0.984/0.980	0.967/0.961
RMSEA (90% CI)	0.071 (0.054–0.088)	0.095 (0.080–0.110)
SRMR	0.069	0.076
AIC	26,059.782	26,366.112
BIC	26,074.145	26,382.681

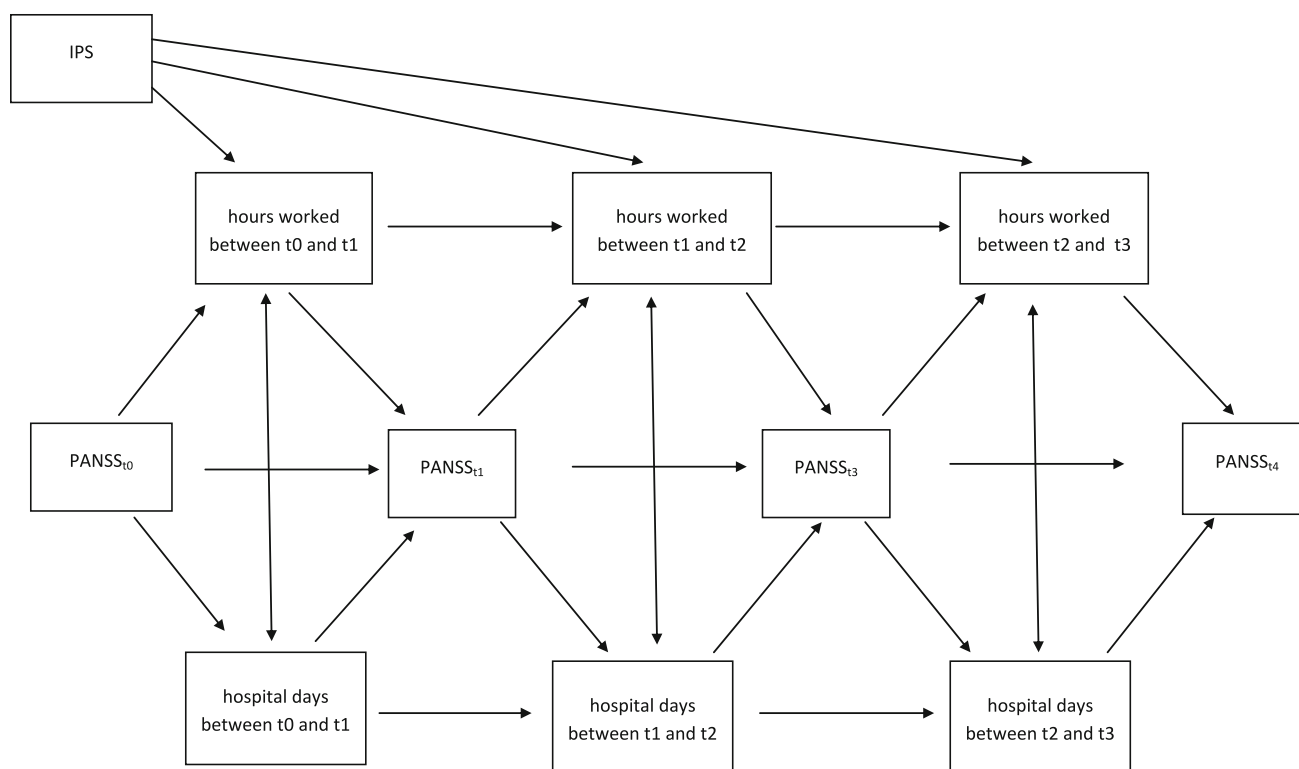


Fig. 1 The autoregressive cross-lagged (ARCL) effect model

at $t2$ ($b -0.022$; $p 0.049$), and through the increase of working hours between $t0$ and $t1$ and the subsequent decrease of the PANSS at $t1$ and at $t2$ ($b -0.028$; $p 0.031$), as well as through the increase of working hours between $t0$ and $t1$, the subsequent PANSS score decrease at $t1$ and the reduction of hospital days between $t1$ and $t2$ ($b -0.018$; $p 0.021$).

Discussion

In this article, we report findings from an RCT in six European countries that compared the effectiveness of IPS and VS in helping people with schizophrenia into competitive employment. Clinical and vocational outcomes of 312 participants were assessed at baseline, 6, 12 and 18 months. Previous papers of this study reported that IPS is twice as effective in bringing these people back to work [9], while being in employment was associated with better global functioning, fewer symptoms, less hospitalisation and less social disability [11]. Although positive relationships have been reported repeatedly, no study has analysed the direction of these relationships.

We used SEM for longitudinal data to explore these relationships more deeply. We found that receiving IPS rather than VS not only increased the time patients spent in competitive employment but also had positive indirect

effects on the participants' clinical status and their need for psychiatric inpatient treatment. The results of our analyses suggest that there is a selection effect causing patients with more severe symptoms to work fewer hours, and that there is also a causal effect of working more hours leading to a decrease of symptoms. Moreover, the indirect effects of our model suggest that the IPS intervention through its effect on the time spent in competitive employment and the subsequent effect on the patients' clinical status leads to a reduction of the need for psychiatric inpatient care.

While some previous studies have found significant associations between psychopathology and vocational outcomes, others could not find any relationship. This is the first study to demonstrate that being in competitive work has a positive influence on the level of psychopathology in people with schizophrenia. This is an important finding especially for those who argue that employment and work-related stress will lead to decreased mental well-being or even relapse in this group [23–25]. By contrast, as already hypothesized by Bush et al. [8] being employed may reduce the risk of inpatient admission through its positive effect on the patients' clinical status.

This effect can be explained by the powerful role of work in organising the lives of people in modern society. As stated by Di Masso et al. [26] “work requires people to concentrate on the tasks at hand while blocking out any distressing thoughts” [24]. Moreover, according to Krupa

Table 5 Path coefficients and R^2 of the autoregressive cross-lagged model

Direct effects		Path coefficient b (SE)	t value	p
Dependent variables (R^2)	Independent variable			
WHOURS01 (0.033)	On PANSS0	−1.323 (0.576)	−2.297	0.022
	On IPS0	65.504 (0.27.98)	2.341	0.019
WHOURS12 (0.376)	On WHOURS01	0.615 (0.061)	10.118	0.000
	On PANSS1	−1.323 (0.576)	−2.297	0.022
WHOURS23	On IPS	65.504 (0.27.98)	2.341	0.019
	On WHOURS12	0.615 (0.061)	10.118	0.000
	On PANSS2	−1.323 (0.576)	−2.297	0.022
HSPD01	On IPS	65.504 (0.27.98)	2.341	0.019
	On PANSS0	0.201 (0.060)	2.322	0.020
HOSPD12	On HOSPD1	0.502 (0.115)	4.371	0.000
	On PANSS1	0.201 (0.060)	2.322	0.020
HOSPD23	On HOSP2	0.502 (0.115)	4.371	0.000
	On PANSS2	0.201 (0.060)	2.322	0.020
PANSS1	On PANSS0	0.770 (0.051)	15.242	0.000
	On HOSPD01	0.002 (0.010)	0.162	0.837
	On WHOURS01	−0.003 (0.001)	−2.087	0.037
PANSS2	On PANSS1	0.770 (0.051)	15.242	0.000
	On HOSPD12	0.002 (0.010)	0.162	0.837
	On WHOURS1-2	−0.003 (0.001)	−2.087	0.037
PANSS3	On PANSS2	0.770 (0.051)	15.242	0.000
	On HOSPD23	0.002 (0.010)	0.162	0.837
	On WHOURS23	−0.003 (0.001)	−2.087	0.037
Indirect effects		Path coefficient b (SE)	t value	p
Total IPS to HOSPD23		−0.104 (0.048)	−2.176	0.030
Total IPS to HOSPD12		−0.036 (0.017)	−2.142	0.032
IPS-WHOURS23-PANSS2-HOSPD23		−0.036 (0.017)	−2.142	0.032
IPS-WHOURS01-WHOURS12-PANSS2-HOSPD23		−0.022 (0.011)	−1.964	0.049
IPS-WHOURS01-PANSS1-PANSS2-HOSPD23		−0.028 (0.013)	0.013	0.031
IPS-WHOURS01-PANSS1-HOSPD12-HOSPD23		−0.018 (0.008)	−2.311	0.021
IPS-WHOURS01-PANSS1-WHOURS01-PANSS2-HOSPD23		0.000 (0.000)	−1.517	0.129
IPS-WHOURS01-PANSS1-HOSPD12-PANSS2-HOSPD23		0.000 (0.000)	−0.157	0.875

PANSS0–PANSS1 PANSS at t_0 –PANSS at t_1 , WHOURS01 hours worked between t_0 and t_1 , WHOURS12 hours worked between t_1 and t_2 , WHOURS23 hours worked between t_2 and t_3 , HOSPD01 days in hospital between t_0 and t_1 , HOSPD12 days in hospital between t_1 and t_2 , HOSPD23 days in hospital between t_2 and t_3

[23] the requirements of work can provide a normative context which helps people with schizophrenia to develop interests, abilities and resources which conform to the social environment. Thus, the demands of work can reinforce patients' active collaboration in treatment efforts [23]. Therefore, vocational reintegration is not only an outcome but a crucial element in the recovery process [23]. A rehabilitation approach which is based on the assumption that a patient can only start to work after his or her psychopathological symptoms have disappeared (or at least significantly improved) would disregard the potential effects of employment in the recovery process. The IPS

approach mobilises the 'healing' potential of employment by helping patients find suitable employment matching their individual resources and providing the level of support which is necessary to adapt individual resources to job demands. Thus, findings of the present analysis underline the recent emphasis on 'recovery' models for people with schizophrenia [27–29]. These models may be more apt to capture relationships observed in this study than concepts of illness-related deficit. The wealth of data on the impact of social and economic factors on illness course and service use highlights the importance of relationships between clinical and social outcomes [30].

Limitations

Limitations of our analysis result from the fact that a discrete-time modelling approach is used while our presumed effects in reality are ongoing processes which evolve in continuous time [16]. As a consequence our results can only be regarded as approximations to the true effects. As an important consequence the comparability of our results is limited to results from studies which use the same time intervals.

Conclusions

These findings underline the importance of employment in the rehabilitation of people with schizophrenia. They add to the existing knowledge that vocational integration for this patient group improves mental well-being and reduces their need for inpatient treatment.

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Conflict of interest All authors declare that they have no conflict of interest.

Appendix

The EQOLISE group: Tom Burns (Oxford), Jocelyn Catty, Connie Geyer, Marsha Koletsis, Pascale Lissouba, Miles Rinaldi, Sarah White (London), Thomas Becker, Ulrike Ehiosun, Rana Kalkan, Reinhold Kilian (Ulm), Angelo Fioritti, Denise Manchisi (Rimini), Astrid Niersman, Jooske van Busschbach, Durk Wiersma (Groningen), Christoph Lauber, Wulf Rössler, Ingeborg Warnke (Zurich), Dimitar Germanov, Toma Tomov (Sofia), Adelina Comas, Claire Curran, Martin Knapp, Anita Patel (LSE).

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